

Editorial

Dear readers of the WISE/NIRS Nuclear Monitor,

In this issue of the Monitor:

- P.K. Sundaram writes about the inspiring campaign against India's Koodankulam Nuclear Project.
- Niels Hooge writes about worrying developments that could lead to the lifting of a ban on uranium mining in Greenland.
- We write about nuclear safety concerns in the USA, including the call for a nuclear phase-out by former regulator Gregory Jaczko as well as an important new report by the Union of Concerned Scientists.
- Steven Griffiths writes about the Scrap Trident campaign in Scotland
- We update the situation in Japan as the number of leaks, accidents and incidents at Fukushima continues to rise.
- Finally, the *In Brief* section has updates from around the world.

The next issue of the Monitor will include articles about depleted uranium contamination in Iraq, a critique of the uranium industry's economic misinformation, a wrap-up of the NPT Prep Com currently underway in Geneva, and more.

This issue of the Monitor is being posted and emailed to subscribers on April 26, the anniversary of the Chernobyl disaster. Our sympathy and solidarity to all those still suffering and still dislocated 27 years after the world's worst civil nuclear disaster.

Feel free to contact us if there are issues you would like to see covered in the Monitor.

Regards from the Nuclear Monitor editorial team
Email: monitor@wiseinternational.org

Scandal Engulfs India's Koodankulam Nuclear Project

The saga of the Koodankulam nuclear reactor on the southern tip of India has taken a turn. The stage was set for commissioning of the reactor in April. Prime Minister Manmohan Singh assured the Russian President that the reactor built by Rosatom will be commissioned soon. The Secretary of the Department of Atomic Energy claimed: "All that I can say is that we are quite close now. We are practically there, barring any new surprising development." Final clearance for going critical was awaited.

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P.K. Sundaram

761.4304 But in mid-April, the operator NPCIL and the Atomic Energy Regulatory Board (AERB), India's toothless regulator, have been forced to admit that they need to replace four crucial valves in the passive heat removal system – much-touted as Koodankulam's unique safety feature against any Fukushima-like loss-of-coolant accident.

The nuclear establishment is yet to explain how the deficient valves could go unchecked despite the reactor undergoing two 'hot runs', several calibration tests, and a number of final check-ups over the past two years purportedly "to be doubly sure" about safety.

The establishment is tight-lipped about the sub-standard valves being part of the consignment received from Zio-Podolsk, a sub-supplier of Rosatom, which has been engulfed in a massive scam involving counterfeit equipments.

While Sergei Shutov, a Director of Zio-Podolsks has been arrested in Russia, it is feared that sub-standard equipment has made its way to India, China, Bulgaria and Iran, given the time-frame of the scandal. Coincidentally, the official admission about the deficient valves came just a day after Dr. A Gopalakrishnan, AERB's former Chair, wrote an article warning about the grave risk the corruption-riddled supplier's consignment would pose for Koodankulam.

The People's Movement Against Nuclear Energy (PMANE), which has been spearheading the massive peaceful protests, has consistently raised the issue with the authorities and the regional and central political leadership ever since the scam was unearthed in December 2012. Earlier, in reply to queries sent under the 'Right to Information' legislation, the NPCIL made the dubious claim that it had no information about the sub-suppliers, particularly Zio-Podolsk.

More than 100 eminent Indian citizens – scientists, academics, artists, social activists, jurists etc. – have demanded an immediate moratorium on the commissioning of the Koodankulam reactor and an independent inquiry into the implications of the scandal in Russia.

A fresh petition in the Supreme Court of India has been filed by prominent lawyers. The Supreme Court has completed hearing arguments in the earlier litigation highlighting safety vulnerabilities, ill-conceived emergency planning, loss of livelihoods and environmental impacts of the project. People are apprehensive that once the operator starts the reactor, it will become virtually impossible to check the equipment received from Zio-Podolsk.

History of the Koodankulam project

The Koodankulam project is a Soviet-vintage Indo-Russian collaboration conceived in 1988. The project has met with massive protests since the beginning, with a 15,000-strong people's demonstration in 1989. However, with the collapse of the USSR, the project went into limbo. When it was revived in 1997-98, protests resumed. Ground work started in 2002 and both the local people and the wider community of independent experts and activists have been vociferous in their opposition since then.

The Fukushima accident in 2011 marked a turning point after which nearby villages, mostly fishing communities, turned decisively against the imminent commissioning of the first of the total six planned reactors, under the remarkable leadership of S.P. Udayakumar, a humble professor who has a doctorate in peace studies from the US.

Despite the opposition's consistent non-violent nature and the wider support it enjoyed, the Indian State has come down heavily on protesting citizens with massive crackdowns twice last year – after the breakdown of 'talks' with people in March and then in September when thousands came out to protest the loading of the radioactive fuel in the reactor.

The government never opted for an open dialogue in the first place and the team of experts constituted by it to 'allay the fears' of the people never went to the villages to talk to the people, nor were the movement leaders given access to basic safety-related documents. The government meanwhile indulged in maligning the movement as 'foreign-funded', church-driven and so on.

During the period when it pretended to have dialogue with people, the government kept on piling fictitious charges under colonial-vintage repressive laws of sedition and 'war against the state'. Today, around 10,000 people including women, young adults and the elderly have been facing these obnoxious criminal charges. Despite all the repression, people in Koodankulam are fighting a heroic battle to save their lives and livelihoods.

The issues raised by the people's movement are tremendously significant. They have raised wide-ranging issues pertaining to safety – both site-specific nuclear hazards and crucial lapses in the adherence of AERB's own norms, issues of health and environment, questions of loss of livelihood due to the project and its security apparatus disallowing them fishing, and the larger issues of democracy and people's say in defining progress and development. The Koodankulam movement has gone far beyond the 'not in my backyard' framework. People have expressed their solidarity with anti-nuclear grassroots movements ongoing in other parts of the country.

On the safety front, the movement has raised some crucial questions with sound technical data and arguments. Inadequacy of cooling water is a huge risk for the reactor as Koodankulam will perhaps be the only reactor to operate without a natural source of water – it will be totally dependent on a desalination plant with insufficient capacity. The area is prone to tsunamis and its geology has a history of volcanism and earthquakes.

Non-adherence to the 17 recommendations of the post-Fukushima safety analysis is another important basis of objection. Brazen defiance of the nuclear establishment's own rules regarding population density and emergency evacuation arrangements has also been brought to the fore. Non-compliance with the standard environmental impact clearance for the project has been explained away by the establishment on the flimsy grounds that in the 1980s, when the project was conceived, the environmental guidelines did not exist. The loss of livelihood for tens of thousands of fishermen in

the vicinity of the reactor has also been one of the key triggers behind the massive upsurge.

When the Indian government and its nuclear establishment are not representing people and flouting rules, they dish out ludicrous denials of the risks associated with Koodankulam and other projects. From claiming on March 14, 2011, when the Fukushima accident took a worse turn, that it was nothing but a chemical accident and the authorities in Japan were doing routine check-ups, to calling Koodankulam the safest reactor in the world, India's nuclear-pushers have shown utter contempt for the common people's intelligence and their democratic rights.

Political observers and activists see the role of larger pressures and interest

groups behind such callous attitudes. The government of India fears that if it accedes to people's demands in Koodankulam, it will give a boost to grassroots protests at other places like Jaitapur, Kovvada, Mithivirdi, Chuta etc. where its ambitious nuclear expansion is planned – consisting of reactors imported from the US, France and Russia. Purchases from those countries are pay-back for their support in getting India an exemption in 2008 from the Nuclear Suppliers' Group, which imposed an embargo after India's first nuclear test in 1974. In essence, India offered its vulnerable people as a bargaining chip to create nuclear elbow-space for itself in the international politics.

Thus, Koodankulam represents the relentless struggles and hopes of

India's common people to safeguard their rights and basic interests. That the scam in Russia has been unearthed at this crucial juncture and the Indian establishment has been forced to further delay commissioning is a sign that this project must be scrapped.

However, the nuclear establishment is still far from admitting the gravity of the situation. On the contrary, it has tried to use the opportunity to sound more responsible and has understated the risk by replacing just a few valves. This complacency could prove fatal.

P.K. Sundaram is Research Consultant with the Coalition for Nuclear Disarmament and Peace (CNDP), India.

Ban on uranium mining in Greenland could be lifted

After the recent Greenlandic general elections in March, abolishment of the zero uranium tolerance policy in the Danish Realm (which consists of Southern Denmark and the two autonomous regions Greenland and the Faroe Islands), which has been in effect for 25 years, could now be a very real possibility. The newly elected chairwoman of the Greenlandic self-rule, the Social Democrat Aleqa Hammond, who campaigned against the ban and won with a slim majority, has given notice that a bill will be introduced in the Greenlandic parliament later this year.

Niels Hooge

761.4305 However, there is still significant opposition to uranium mining in Greenland. Furthermore, bills to lift the ban will have to be passed both in Nuuk and Copenhagen and even though the Danish government favours the bill, it could still be voted down in the Danish parliament. The Danish government is a minority government and even within the government itself there is opposition to lifting the ban.

In recent years, several exploration and mining projects focusing on rare earth elements (REEs) as well as iron, lead, zinc, molybdenum, rubies, diamonds, platinum and other minerals have been under development in Greenland. One

of the largest deposits of REEs in the world has been discovered in Kuannersuit (Kvanefjeldet) at Narsaq in Southern Greenland. However, the bedrock in Kuannersuit does not only contain REEs, but also uranium and by far the world's single largest deposit of thorium – possibly as much as two million tons. Some people consider thorium an alternative to uranium as fuel for 'fourth generation' nuclear power reactors.

The Australian mining company Greenland Minerals and Energy Ltd. (GME), which is licensed to mine in Kuannersuit, estimates the uranium deposit at 232,000 tons of uranium oxide. Another estimate puts the uranium deposit for the whole Ilimaussaq-complex, of

which Kuannersuit is a part, at as much as 600,000 tons of uranium. GME has stressed that if the company is not allowed to extract the uranium it will give up its mining operations at Kuannersuit altogether.

If the annual production is as substantial as projected in the 2010 GME financial report – 3,895 tons – Kuannersuit will be the third largest uranium mine and the second largest open pit uranium mine in the world.[1] Only the McArthur River mine in Canada and Ranger in Australia will be bigger. According to the most recent GME estimates, the mine at Kuannersuit will have a life-span of at least 60 years. As the sixth largest uranium deposit in

the world, it could provide almost 8% of world production.

In addition to Kuannersuit, there are uranium deposits at Illorsuit, Puissattaq, Ivittuut and Motzfeldt Lake in Southern Greenland, Sarfartoq, Nassuttooq, Qaqaarsuk and Attu in Western Greenland and Randbøldal and Milne Land in Eastern Greenland, and there might be deposits that have not yet been discovered.

Environmental and economic concerns

The possible location of such a big open pit uranium mine in an Arctic environment that is particularly vulnerable to pollution, because it recovers very slowly, has caused concerns not only among green activists and NGOs in Greenland and Denmark, but also in other Nordic countries. NGOs have pointed out that in addition to substantial chemical pollution by among others sulphuric acid, uranium mining leaves behind millions of tons of tailings containing radioactive materials such as thorium, radium, radon and polonium. [2] The radioactive substances could be washed out from the tailings and absorbed in land vegetation and marine organisms and – if accumulated in the food chains – harm humans and animals.

Critics of uranium mining at Kuannersuit have also pointed out that considering that the waste from uranium mining remains dangerously radioactive for hundreds of thousands of years, it is a concern that the long-term economic costs of radioactive pollution in Greenland could be so high that they by far exceed the short-term economic benefits. For example the clean-up of residues from uranium mining in Germany of a scale – production of 231,000 tons

of uranium [3] – corresponding to the one projected at Kuannersuit, has so far cost the German taxpayers more than seven billion euros and the total costs could be even higher. Uranium mining in Germany was stopped in 1990 and at the earliest, the clean-up is expected to be completed in 2020, after which the contaminated areas must be monitored closely and maintained for a very long time.

It is evident that the licensee, GME, does not have sufficient economic resources to restore ecological damage from millions of tons of waste that remains radioactive for so long. The company's only financial asset is its license to mine in Kuannersuit. Nor does the Greenlandic self-rule have sufficient resources to restore ecological damage at Kuannersuit or elsewhere in Greenland. The Danish government, which is the only stakeholder that possesses sufficient economic resources, has not yet given such a guarantee, even though it will get revenue from the uranium mining by setting income to the Greenlandic self-rule from company taxes and royalties off against block grants.

Furthermore, critics have pointed out that even in the short term, it seems unlikely that an improvement of Greenland's economy is dependent on an abolishment of the uranium zero tolerance policy. For example REEs can be mined southwest of Kangerlussuaq, in Godthåbsfjorden, at Kangerdluarssuq between Narsaq and Qaqortoq and near Narsarsuaq. The REEs deposit at Kangerdluarssuq is described by the licensee, the Australian mining company Tanbreez Mining Greenland, as probably the largest in the world. At the projected extraction rate, mining at Kangerdluarssuq could last 10,000 years. Furthermore, there are many

other advanced exploration and mining projects in Greenland.

The next crucial step towards a possible lift of the ban on uranium mining in Greenland will take place in May, when the Greenlandic Ministry of Industry and Labour is expected to release a report on the environmental impact of uranium mining at Kuannersuit. There is a general expectation that the report will downplay the negative environmental aspects of uranium mining. Hence, the response to the report from the NGO community could be an important factor in determining whether the ban will continue or be lifted.

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Contact: Niels Hooge, nielshenrik-hooge@yahoo.dk

The Scrap Trident Coalition in Scotland

The international Treaty on the Non-Proliferation of Nuclear Weapons (NPT) opened for signatures in 1968, and entered into force in 1970. Since then, a total of 190 parties have joined the Treaty, including the five 'declared' nuclear-weapon states (USA, Russia, UK, China, France). The foundation of the NPT agreement is that: "the NPT non-nuclear-weapon states agree never to acquire nuclear weapons and the NPT nuclear-weapon states in exchange agree to share the benefits of peaceful nuclear technology and to pursue nuclear disarmament aimed at the ultimate elimination of their nuclear arsenals".

Steven Griffiths

761.4306 In the forty-plus years since the establishment of the NPT, there has been limited progress on nuclear disarmament. Currently, the five declared nuclear weapons states still have 22,000 warheads in their combined stockpile and none are showing much enthusiasm about disarming further, despite their Cold War anxieties being long consigned to the pages of history. Indeed, UK Prime Minister David Cameron has just this month invoked the current tensions in the Korean peninsula to defend the renewal of the UK's Trident nuclear deterrent.

Proposals to replace the Trident system were passed by the House of Commons by a majority of 248 in March 2007, and all of the major UK parties are agreed on the need for a UK nuclear deterrent – this despite Greenpeace estimating the actual cost of building and operating Trident's replacement at around £100bn. However, into this scene of cosy establishment consensus, an actor has entered who could yet pull the rug from under the feet of the London-based parties and produce an unexpectedly dramatic dénouement which will be felt all around the world.

The actor is, of course, the decision by the devolved Scottish government to hold a referendum of the Scottish electorate on the issue of independence from the United Kingdom. Due to take place on 18 September 2014, the referendum places a unique opportunity into the hands of the people of Scotland – the disarmament of one of the five declared nuclear-weapon states.

So, how would independence for Scot-

land mean the nuclear disarmament of the UK? Simple: for 44 years, the UK has stored its nuclear weapons in western Scotland. Faslane, 40 kms west of Glasgow, Scotland's biggest city, has been home to the nuclear deterrent since 1969. Warheads are stored 13 kms away at Coulport. In its report, 'Trident: Nowhere To Go', the Campaign for Nuclear Disarmament has argued that "relocation is not a serious option" for the Ministry of Defence in the event of an independent Scotland ordering the removal of nuclear weapon facilities and vessels from Scotland. Professor Malcolm Chalmers, Director of Defence Policy at the Royal United Services Institute, has similarly argued that "relocation of these bases would be very difficult, if not impossible, to implement" and that it would be "perhaps politically impossible to find a suitable alternative location for the warhead storage facility currently based in Coulport."

So, how likely is this scenario? Polls have consistently shown independence trailing the status quo. However, the gap between those in favour of independence and those against has narrowed to just 10 points according to the most recent survey published in the Sunday Times on March 24. It showed support for Yes at 36%, No at 46%, and 'Don't Knows' at 18% – the narrowest gap in the campaign so far. The result means a swing of just 5% would see Scotland voting for independence.

The independence debate has largely centred on the economics of going it alone, with much discussion around such issues as North Sea oil, the budget deficit, currency and debt. Recently, however, the focus has shifted to other areas, such as the likely military

policies of an independent Scotland. It is here that things become interesting. Opinion polls show maintaining Trident is unpopular throughout the UK, but nowhere is it less popular than in Scotland. Indeed, polls consistently show that more people oppose nuclear weapons than support independence. According to a poll published on March 13, 60% of Scottish voters are against the policy of Cameron's Conservatives and the Labour Party to replace Trident.

Trident, then, is certain to feature strongly in the referendum debate. As the Scottish National Party's Angus Robertson said in a recent debate: "The majority of MPs from Scotland and the majority of Members of the Scottish Parliament have voted against Trident renewal. The Scottish Government are opposed to Trident, the Scottish Trades Union Congress is opposed to Trident, the Church of Scotland is opposed, the Roman Catholic Church in Scotland is opposed, the Episcopal Church of Scotland is opposed, the Muslim Council of Scotland is opposed, and, most important, the public of Scotland are overwhelmingly opposed to the renewal of Trident."

Last month, on the back of this popular opposition, the Scottish Parliament passed an historic resolution confirming its opposition to nuclear weapons. Furthermore, the Greens, Independents and the Scottish National Party all favour a constitutional ban on nuclear weapons. Thus, if Scotland votes Yes, it is pretty certain that Trident will go and Scotland will become nuclear free.

To ensure that this implication of the referendum is understood by the Scot-

tish public, a number of groups came together to form a coalition to campaign on this issue. Calling itself the Scrap Trident coalition, this diverse collaboration of peace groups, greens, trade unionists, disabilities rights campaigners, anti-cuts campaigners, and other radical grassroots organisations quickly united behind an anti-austerity / anti-Trident message in Scotland.

Highlighting the huge cost of Trident while the government is cutting welfare, pensions and disability benefits, the Scrap Trident campaign soon gathered momentum. A weekend of protest and action was organised that saw a huge march and rally in Glasgow city centre on April 13, followed by a blockade of Faslane naval base the following Mon-

day, as part of the Global Day of Action on Military Spending. This event, one of the largest demonstrations of non-violent direct action in Scotland for several years, saw hundreds take part in civil disobedience that closed the base for several hours and saw 45 people arrested. This provoked media interest and suddenly the issue of nuclear disarmament took centre stage in the Scottish independence debate.

So will this factor convince the people of Scotland to vote Yes? We will find out in September 2014, but as Krista van Velzen, Socialist Party member of the Dutch Parliament from 2002 to 2010, told the thousands gathered for the Scrap Trident Demonstration in Glasgow: "This will be the first time any

of the people of the nations of Europe can actually vote whether they want their country to be a nuclear weapon state. Scotland might lead the way for all of us!"

It is an imposing and yet an inspiring task. We here at the Scrap Trident coalition will be spending the next 17 months ensuring that the people of Scotland know just what is at stake, for this small country in northern Europe, and for all of the countries of the world.

Contact: *Steven Griffiths works with the Scrap Trident Coalition and the Scottish Campaign for Nuclear Disarmament. scraptrident2013@gmail.com, <http://scraptrident.org>*

USA: Ex-regulator calls for nuclear power phase-out

Dr Gregory Jaczko, former chairman of the US Nuclear Regulatory Commission (NRC), has called for the phase-out of nuclear power reactors in the US because they are based on "flawed technology" and "flawed design" and because regulators and plant operators cannot guarantee there won't be another severe accident.

761.4307 Jaczko made the call at a Carnegie International Nuclear Policy Conference in Washington in early April, and in interviews. "Continuing to put Band-Aid on Band-Aid is not going to fix the problem," he said.

Jaczko said that many US reactors that had received permission from the NRC to operate for 20 years beyond their initial 40-year licenses probably would not last that long. He resigned as NRC chairman last year, having often advocated for more vigorous safety improvements which the other four NRC Commissioners considered unnecessary.

Jaczko said the NRC "damaged significantly" its reputation by voting recently to delay by at least four years a decision on whether to require filtered vents on older boiling water reactors, and by ruling out any options that would take full account of the cost of lengthy evacuations in weighing measures to prevent a major radiological release.

Another former NRC commissioner, Victor Gilinsky, pointed out that the NRC's two decisions fell well short of recommendations by the American Society of Mechanical Engineers' Presidential Task Force on Response to Japan Nuclear Power Plant Events, which was headed by yet another former NRC Commissioner, Nils Diaz. ASME recommended a "new nuclear safety construct" reaching beyond "adequate protection" to "consider all risks, and includes rare yet credible events." The ASME report lists "filtration of containment vents or comparable measures" as a mitigation measure in the event of a severe accident.

Union of Concerned Scientists report

The Union of Concerned Scientists (UCS) has released 'The NRC and Nuclear Power Plant Safety 2012 Report: Tolerating the Intolerable', the third report in this annual series. The report takes the NRC to task for

its failure to consistently enforce its own regulations, effectively leaving long-term holes in the safety net that is supposed to protect the public from the inherent hazards of nuclear power.

According to the report, the NRC's lax oversight "reflects a poor safety culture," including a disconnect between the agency's workforce and its senior management, with managers tending to downplay safety problems and react negatively when workers point them out.

"The NRC has repeatedly failed to enforce essential safety regulations," wrote David Lochbaum, director of the UCS Nuclear Safety Project and author of the study. "Failing to enforce existing safety regulations is literally a gamble that places lives at stake."

The report offers examples of both positive and negative aspects of the NRC's safety performance. Two positives listed were the NRC's proactive

development of an action plan and improve its procedures for identifying and responding to problems with counterfeit, fraudulent and suspect reactor components, and its work on nuclear security issues.

Negatives include the following:

- Safety culture. In 2011, the NRC issued a statement outlining its expectation that the nuclear industry would take steps to “promote a positive safety culture.” However, a 2012 survey of NRC staff found that nearly half of its employees expressing scepticism that the NRC is serious about improving the safety culture, and half of the NRC’s employees had heard about co-workers who received negative reactions from supervisors and senior managers after raising a concern.
- Fire non-protection. After a 1975 fire at the Browns Ferry plant, the NRC adopted a new set of fire protection regulations, issued in 1980 and revised in 2004. In 2012, the NRC granted an extension to the Tennessee Valley Authority (TVA), giving the TVA more time to prepare a fire regulation compliance plan—for that very same Browns Ferry plant. For over 30 years, the plant has been allowed to operate out of compliance with the regulations its own accident prompted.
- Temporary storage of spent fuel. In 2012 a federal court ruled that the NRC had failed to meet its obligations under the National Environmental Policy Act of 1969 by neglecting to prepare an environmental impact statement for its Waste Confidence Decision, which

specifies how long nuclear waste may safely be stored at nuclear power plant sites.

- Recurring reactor cooling water leaks. The near-miss at the Palisades plant, in which cooling water leakage was allowed to continue for nearly a month, even though the leak was in an area where NRC regulations require the plant to be shut down within six hours, points to an ongoing problem: the NRC routinely allows violations of this type to go unpenalised.
- Nuclear plant flooding hazards. NRC commissioners told a Senate committee in a 2012 hearing that a Fukushima-like disaster could not happen in the U.S. In fact, two years earlier the NRC had notified the owner of the Oconee reactors, located downstream from the Jocassee dam, that they needed to implement measures to guard against what NRC risk analysts considered a near certainty of flood damage in the event of a dam failure. Not only did the commissioners mislead the Senate, they withheld this information from the public for two years.
- Incomplete and inaccurate statements. Nuclear plant owners are required by law to include complete and accurate information in all documents they submit to the NRC. Yet each year, NRC staffers find themselves sending thousands of Requests for Additional Information (RAIs) to plant owners in connection with applications for licensing actions.

Over the past three years, 40 of the 104 U.S. reactors experienced one or

more serious safety-related incidents that required additional action by the NRC. These “near-misses” are events that increased the likelihood of reactor core damage, thus prompting the NRC to dispatch an inspection team. There were 14 such incidents in 2012, including:

- cooling water leaking from a reactor vessel leading to an emergency reactor shut down;
- switchyard equipment failure triggering an automatic reactor shut-down;
- disconnection from offsite power followed by failure of one emergency diesel generator;
- a fire disabling over half of the emergency equipment at a nuclear plant;
- failure of steam isolation valves;
- a cooling water leak and failure to shut down the reactor within six hours as required by regulations;
- failure to prevent unauthorised individuals from entering secure areas of a nuclear plant;
- erratic performance of an emergency diesel generator during a routine test, caused by an improper fix to another problem four months earlier; and
- an electrical fault in a switchyard causing the main generator to shut down automatically, after which a second electrical fault disconnected the plant from its offsite power supply.

The UCS report, ‘The NRC and Nuclear Power Plant Safety 2012 Report: Tolerating the Intolerable’, is posted at www.ucsusa.org

Fukushima Updates

Ohi reactors

On April 16 a Japanese court rejected an application by Green Action and more than 260 people to have two Ohi (Oi) reactors shut down. Ohi reactors 3 and 4 are the only two reactors currently operating in Japan. They are operating without new safety measures designed in the wake of the Fukushima disaster. There are active earthquake faults nearby. The court ruled that the

reactors are safe until proven otherwise. It also ruled that there is no requirement to be able to shut down a reactor within the required time in the event of an accident/earthquake – even though Ohi received its licensing permit on the premise that it met this shut-down time limit. Green Action is appealing the court’s verdict. (*Green Action www.greenaction-japan.org/modules/entop2*)

Meanwhile, Japan’s new Nuclear Regulation Authority has begun the process of assessing Ohi reactors #3 and #4. Kansai Electric insists that the plant does not require an anti-tsunami wall, and that there are no active faults beneath the facility. Seismic experts have disputed that statement.

More leaks, accidents and incidents

TEPCO has acknowledged more leaks of radioactive water at Fukushima, bringing the total number of leaks that have been discovered in April to at least five. The leaks have been found in holding tanks and in pipes connecting tanks. Some of the leaks are continuing because TEPCO has been unable to locate their source. TEPCO President Naomi Hirose held a press conference and apologised for the fiasco. He said that TEPCO is building more above-ground tanks and that all water would be transferred by the end of June. A total of 23,600 tons of water needs to be relocated.

World Nuclear News noted that levels of radioactivity in the leaked water were 6 MBq/l and 300 MBq/l – enough to be classified as intermediate-level radioactive waste in most countries.

In addition to the leaks, there have been multiple accidents and incidents in the past month including multiple power losses, radiation monitoring malfunctions, and accidental shutdown of a water decontamination system.

TEPCO has admitted that 14 workers dealing with radioactive water problems were working without dosimeters on April 6 – adding to the long and shameful history of employees and contractors working without dosimeters, or with dosimeters covered up, since the March 2011 triple-disaster.

Fish within 20 kms of the Fukushima plant have surpassed baseline measures of radioactivity, TEPCO said in its environmental monitoring report published April 12. One specimen tested near the port entrance to Fukushima Daiichi was 4,300-times more radioactive than what Japanese officials consider standard. (*Greenpeace International 'Nuclear Reaction' weblog; World Nuclear News, 15 April; Bloomberg 15 April*)

TEPCO refuses to pay decontaminations costs

Despite the fact that the Japanese government paid one trillion yen to keep TEPCO afloat, TEPCO officials are now refusing to reimburse the government's Environment Ministry

for 10.5 billion yen in costs required to decontaminate areas around the Fukushima plant. The Ministry has already requested payment twice, but so far, TEPCO has refused to comply. Because the government did not specify any timelines in the legislation, no interest or fines can be levied against TEPCO for not paying, and if the utility refuses, those costs would be passed along to taxpayers. (*Greenpeace International 'Nuclear Reaction' weblog*)

IAEA investigation

A group of 12 experts from the International Atomic Energy Agency (IAEA) undertook a week-long investigation the Fukushima Daiichi plant in mid-April. Juan Carlos Lentijo, head of the IAEA assessment team, said that decommissioning of the Fukushima reactors may exceed 40 years, far longer than TEPCO's projected timeline. "In my view, it will be near impossible to ensure the time for the decommissioning of such a complex facility in less than 30, 40 years, as is currently established in the roadmap," he said.

There is a long and unhappy history between the IAEA and Japan. There has been a revolving door between Japan's nuclear village and the IAEA. In 2009, a US cable released by WikiLeaks said that over the past decade, the IAEA's department of safety and security "suffered tremendously because of [deputy director general] Taniguchi's weak management and leadership skills." Taniguchi moved to the IAEA after decades working in the private- and public-sector arms of Japan's nuclear village. Another 2009 US cable said: "Taniguchi has been a weak manager and advocate, particularly with respect to confronting Japan's own safety practices, and he is a particular disappointment to the United States for his unloved-step-child treatment of the Office of Nuclear Security."

The IAEA carried out safety inspections at Fukushima in 1992 and at Chubu's Hamaoko plant in 1995, finding a total of 90 deficiencies in safety procedures including "weakness in emergency plan procedures", "insufficient event analysis on near-misses" and "lack of training for plant personnel on severe accident management". The IAEA was not invited to carry out any further safety

inspections after 1995 and TEPCO and Chubu resisted the recommendations of the IAEA experts.

Koriyama legal action

Residents are pursuing legal action charging that children living in the town of Koriyama, 55 kms west of the Fukushima nuclear plant, should be evacuated in order to protect them from radiation. The town is home to 330,000 people. The case, originally filed in 2011 on behalf of the children by their parents and anti-nuclear activists, was rejected by a lower court and is now being heard by an appeals court – the Sendai High Court in Miyagi Prefecture. The number of children behind the original lawsuit has dwindled as families left the prefecture voluntarily or the children grew older. Annual radiation exposure in most areas of the town is below 20 millisieverts but there are more heavily contaminated hot spots. Plaintiffs argue that children should not be exposed to higher levels than international standards allow – 1 millisievert per year. (*Greenpeace; Japan Daily Press; Associated Press*)

Offshore wind turbines

The Environment Ministry of Japan will begin installing two floating offshore wind turbines this year as a way to help diversify the country's generation mix in the wake of the Fukushima nuclear disaster. Post-Fukushima, Japan is spending approximately \$100 million each day on liquid natural gas to replace offline reactors. The Japanese government will take incremental steps to prove the floating offshore turbine technology, testing three additional types of floating turbine technology. The best-performing turbine type may then be chosen to power a larger offshore wind farm – up to 1,000 MW – located off the Fukushima coastline. There are only two full-scale offshore wind projects in the world that feature floating wind turbines, in Norway and Portugal. (*nawindpower.com*)

In Brief

USA: Jail sentence for under-reporting injuries at nuclear plants.

An American court has sentenced a former engineering safety manager to 6.5 years in prison for falsifying information about injuries at three nuclear power plant sites. Walter Cardin was convicted in November 2012 by a federal grand jury of eight counts of major fraud against the Tennessee Valley Authority (TVA), a US government corporation. The offences were committed from 2004 to 2006. Cardin was convicted of providing false information by under-reporting the number of injuries and their severity.

At the time of the offences, Shaw Group subsidiary Stone & Webster Construction had been contracted by the TVA to provide maintenance and modification services at the Browns Ferry, Sequoyah and Watts Bar nuclear sites, including construction work for the restart of Browns Ferry 1. False injury rates were then used by Stone & Webster to collect safety bonuses of over \$2.5 million from TVA. Stone & Webster paid back US\$6.2 million to the USA as part of a civil settlement over the false claims and contract fraud in early 2009. During the trial, evidence was presented covering more than 80 injuries that were not properly recorded by Cardin. Some employees testified that they had been denied or delayed proper medical treatment as a result of Cardin's actions. (*World Nuclear News*, 15 April 2013, 'Jail sentence for falsification')

Bulgarian nuclear plant leak. A turbo generator at the Kozloduy nuclear power plant was shutdown due to a hydrogen leak in its cooling system. The component that was shut down was part of its conventional, non-nuclear unit, reported Associated Press. The plant, located 200km north of the capital Sofia, has two 1000 MW reactors built in Russia. Two older 440 MW units at the plant were permanently decommissioned in 2006 as a result of European Union safety concerns. Officials were not able to confirm what repairs are necessary at the plant or when the unit might be back in operation. The plant has two 1000-megawatt Russia-built nuclear

units. Two older 440-megawatt units at the nuclear plant were permanently decommissioned in 2006 because of European Union safety concerns. (*Energy Business Review*, 15 April 2013, nuclear.energy-business-review.com)

USA: shots fired at Watts Bar nuclear plant.

A security officer patrolling TVA Watts Bar Nuclear Plant in Spring City was involved in a shootout with a suspect on Sunday April 21 at about 2am. The incident happened on the Tennessee River side of the plant property, several hundred metres from the plant's protected area, which houses its reactor and power production facilities. The person travelled up to the plant on a boat and walked onto the property. When the officer questioned the suspect, the individual fired multiple shots at the officer. The officer shot back, and when he called for backup, the suspect sped away on his boat. At least one bullet struck the patrol vehicle, but the officer was not injured in the incident.

One power reactor operates at Watts Bar, and another is under construction. TVA has had security problems at Watts Bar before, and two contractors have been convicted of falsifying records about inspections of non-existent electrical cable that would have served the newest reactor's cooling system. The Nuclear Regulatory Commission in 2011 placed Watts Bar under a security safety flag for several months, but neither TVA nor the NRC would discuss why. The US government is considering privatising TVA. (www.timesfreepress.com; www.wbir.com)

South Korea / US nuclear agreement.

South Korea and the US have agreed to extend by two years an agreement that prevents Seoul from enriching uranium or reprocessing spent fuel (processes with important implications for weapons proliferation). Those processes were prohibited as part of a 1972 pact that provided Seoul with US nuclear fuel and technology. That deal was set to expire next year but will be extended for another two years. South Korea has been pushing to end the ban on enrichment and reprocessing. South Korea's Foreign Ministry said the two governments

would use the two-year extension period to work out "the complexity of details and technologies." South Korea has a long history of secret nuclear weapons research, and in recent years has expressed interest in 'pyroprocessing', possibly to circumvent the ban on conventional PUREX reprocessing. (*NTI Global Security Newswire*, 24 April 2013, 'South Korea, U.S. Still at Odds on New Atomic Trade Terms'; *WISE/NIRS*)

USA: environment group told to pay thousands for public info. Clean Nebraska, which is calling for an investigation into the troubled Fort Calhoun nuclear power plant, is asking the Omaha Public Power District for financial data regarding the plant but has been told the information will cost between US\$2,500 and \$5,000 due to "staff time and other costs." Clean Nebraska's Mike Ryan said: "This looks and smells like a cover-up. Charging ratepayers \$2,500 or more for public information effectively hides it from us." Ryan said they are asking for information regarding costs to repair and ultimately restart the reactor. Fort Calhoun has been shut down for two years and will not be restarted without the approval of the Nuclear Regulatory Commission. (*Joe Jordan*, 17 April 2013, 'Group told to pay thousands for public info on troubled nuke plant', <http://watchdog.org>)

Quake too close to Iran's reactor for comfort.

A 6.3 magnitude earthquake shook Iran's southern shores on April, as the country celebrated National Nuclear Technology Day. Iran's sole nuclear power reactor, at Bushehr, 150 kms from the quake's epicentre, was unaffected, Iranian and Russian officials said. The reactor, completed in 2011, sits at the intersection of three tectonic plates and is designed to endure earthquakes up to a magnitude of 6.7.

During tests in February 2011, all four of the reactor's emergency cooling pumps were damaged. The reactor was shut down again last October after stray bolts were found beneath the fuel cells. The Iranian government has neglected to address basic questions about its preparedness for a nuclear emergency, including the lack of evacuation drills for Bushehr residents.

Iran's Nuclear Regulatory Authority is not an independent body. As a result of the politicisation of Iran's nuclear program, safety concerns are secondary. The Russian operators of the plant are due to run the reactor for only the first two years after its official September 2011 start-up and then are to hand over control to the Iranians. Iran is the only nuclear power country that has not signed the Convention on Nuclear Safety, which sets international benchmarks on the siting, design, construction and operation of reactors. (*Foreign Policy; The Age, 13 April 2013, 'Quake too close to Iran's reactor for comfort'*)

Lithuania concerned about Belarus nuclear plant. The Implementation Committee of the United Nations Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) has criticised Belarus for failing to provide information, including environmental impact assessment (EIA) documentation, to neighboring Lithuania. Despite numerous official requests sent by Lithuania, its questions about compliance with nuclear safety standards and environmental requirements had not been answered, Lithuanian Environment Minister Valentinas Mazuronis said.

Lithuania filed a complaint with the Espoo Convention Implementation Committee and the Espoo Convention Secretariat against alleged violations of the Convention by Belarus in June 2011. In March 2013, the Committee drafted its final conclusions, which should be approved at the meeting of the Parties to the Convention in June 2014. (*'Espoo Committee: Lithuania's concerns over Astravyets nuclear facility are justified', 17 April 2013, www.15min.lt; UN Espoo Convention www.unece.org/env/eia*)

Portugal sets 70% renewables record. According to new figures from Portugal's grid operator REN, 70% of the electricity consumed in Portugal during the first quarter of the year came from renewable sources as a result of favourable weather conditions and the country's investment in wind and hydro-electricity capacity. Hydroelectric output rose 312% per cent year-on-year, accounting for 37 per cent of total consumption, while wind energy generation rose 60%

per cent, delivering 27% of total consumption. The performance is likely to have resulted in a significant emission reductions, given output from coal and gas-fired power stations fell 29% and 44% respectively, compared with the first quarter of 2012. (*econews.com.au/news-to-sustain-our-world, 15 April 2013*)

Singapore rules out nuclear. The Singaporean government is not actively considering nuclear power, because emergency planning would be too much for the small, densely-populated country. This follows a pre-feasibility study completed last year. Singapore's electricity supply will be increasingly fuelled by gas, which already makes up 78% of supply and will increase further, cutting into the 18% provided by oil. Singapore joins a growing list of countries that have decided since the Fukushima disaster not to engage or re-engage in nuclear programs, although they had previously planned to do so, including Greece, Israel, Italy, Kuwait, Oman, Peru, Portugal, Thailand, and Venezuela. Belgium, Germany, and Switzerland plan to phase-out their existing nuclear power programs.

Germany: search for nuclear waste site. Germany will launch a new site selection process for a repository to hold the country's radioactive waste under a compromise agreement between the federal and state governments and opposition parties. A draft law calls for the formation of a 24-member federal-state commission to develop proposals on safety requirements and site selection criteria by the end of 2015. The Bundestag will take decisions on the individual steps of the site selection process, including decisions on locations for above- and underground site surveys. The commission will recommend a repository site to parliament by 2031. The proposal calls for the repository to be built by 2040.

The parties agreed that, for the time being, no more radioactive waste would be transported to the Gorleben salt dome in Lower Saxony state, which has been under investigation as a potential repository site. Site suitability work at Gorleben will be terminated and a research laboratory will not be built there. However, Gorleben

will not be excluded from the new site selection process. German nuclear waste currently stored abroad is to be taken to other interim storage sites in Germany.

Currently, German radioactive waste is placed in interim storage, with used fuel mostly stored at reactor sites. Most German used fuel is to be reprocessed overseas. Vitrified high-level wastes arising from reprocessing contracts signed up to 1989 is stored in surface facilities at Gorleben and Ahaus. Work began in 2007 on the conversion of a former iron ore mine at Konrad in Lower Saxony into a repository for low- and intermediate-level waste which is planned to be in operation around 2014. (*World Nuclear News, 10 April 2013, 'Search for German repository site starts again'*)

Navajo help create uranium clean-up plan. In 2006, Navajo tribal and federal agencies developed a five-year plan to remediate contaminated uranium mining sites on the reservation. The first five-year plan ended in 2012 with only some of the goals met and now a second five-year plan is being developed. More than 200 tribal officials, federal representatives and Navajo family members recently held a two-day meeting at the Uranium Contamination Stakeholder Workshop.

Navajo Nation President Ben Shelly said the agencies "still have a long way ahead" to deal with a variety of problems stemming from the uranium mining on the reservation in the 1940s, 50s and 60s. Hundreds of Navajo families built their homes using material from the mining and mill operations. The tribe and the federal government are still in the process of tearing these homes down and relocating Navajo families into safer homes.

Nicole Moutoux, who heads the Superfund Program for the U.S. Environmental Protection Agency in San Francisco, said that surveys have found that there are more than 400 sites on the reservation that exceed the average uranium levels. "There are 36 sites that are more than 10 times the norm," she said.

Another speaker, Angela Ragin-Wilson, representative for Agency

for Toxic Substances and Disease Registry, said more efforts are being made to track the effects of uranium exposure on the health of young Navajos as part of a birth cohort study. (Bill Donovan, 18 April 2013, 'Navajo families help create five-year uranium cleanup plan', navajotimes.com/news/2013/0413/041813ura.php)

UK nuclear plant leaking radioactive waste 'for months'. A nuclear power station in Kent has been leaking radioactive waste for months according to the UK Environment Agency. Routine tests on boreholes drilled close to the Dungeness B plant found traces of tritium measuring more than seven times the agreed level. The Environment Agency said: "EDF informed the Environment Agency and the Office for Nuclear Regulation in September 2012 and in December 2012 that they had monitored elevated levels of tritium in the groundwater on the Dungeness B nuclear licensed site. Dungeness B is a significant distance from any boreholes used for drinking water

abstraction. As a precaution, the local water authority has been informed of the results." Dungeness B is two advanced gas cooled reactors which began operations in 1983 and 1985. It remains operational after Dungeness A was closed in 2006. (*Daily Mail*, 18 April 2013)

Australia: Radioactive Exposure Tour. Friends of the Earth, Australia has just completed its annual Radioactive Exposure Tour to the South Australian desert. The 'radtours' have their origins in the blockades of the Olympic Dam (Roxby Downs) copper/uranium mine in the early 1980s. The tours have exposed thousands of people first-hand to the realities of 'radioactive racism' and to the environmental impacts of the nuclear industry. This year's group included visitors from Vietnam, India and Germany.

One of the highlights this year was speaking to Mrs Emily Austin, one of the Kupa Piti Kungka Tjuta who led an inspiring and successful campaign

to prevent the Howard Government imposing a nuclear waste dump on their land near Woomera in SA. Another highlight of this year's radtour was the participation of Maralinga nuclear bomb test veteran Avon Hudson for the whole 10-day trip. Visit the Woomera Missile Park and you'll see big chunks of metal – but Avon brings them to life with his encyclopaedic recollection of the history of missile testing in the region.

Participants were privileged to hear from Marg Sprigg at the Arkaroola Wilderness Sanctuary – land that is 1.8 billion years old. The Spriggs are celebrating a successful campaign to prevent Marathon Resources from establishing a uranium mine inside the precious sanctuary. Marathon did itself no favours by illegally disposing of hundreds of low-level radioactive drill samples inside the Sanctuary; the company was caught out by detective work by Marg and Doug Sprigg. (www.foe.org.au/anti-nuclear/issues/oz/radtour)

WISE / NIRS Nuclear Monitor

The World Information Service on Energy (WISE) was founded in 1978 and is based in Amsterdam, the Netherlands.

The Nuclear Information & Resource Service (NIRS) was set up in the same year and is based in Washington D.C., US.

WISE and NIRS joined forces in the year 2000, creating a worldwide network of information and resource centers for citizens and environmental organizations concerned about nuclear power, radioactive waste, proliferation, uranium, and sustainable energy issues. The WISE / NIRS Nuclear Monitor publishes information in English 20 times a year. The magazine can be obtained both on paper and as an

email (pdf format) version. Old issues are (after 2 months) available through the WISE homepage: www.wiseinternational.org

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WISE International
Po Box 59636, 1040 LC Amsterdam,
The Netherlands
Web: www.wiseinternational.org
Email: info@wiseinternational.org
Phone: +31 20 6126368
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